

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (previously presented) A process for producing metal oxide from a metal compound in which the metal compound is conveyed into a reactor with fluidized bed, heated there to a temperature of 650 to 1150°C by combustion of fuel, and metal oxide is generated, comprising introducing a first gas or gas mixture from below through a gas supply tube into a mixing chamber of the reactor located above the orifice region of the gas supply tube, the gas supply tube being at least partly surrounded by a stationary annular fluidized bed which is fluidized by supplying fluidizing gas, wherein the gas flowing through the gas supply tube entrains solids from the fluidized bed into the mixing chamber when passing through the upper orifice region of the gas supply tube, and adjusting the gas velocities of the first gas or gas mixture as well as of the fluidizing gas for the annular fluidized bed such that the Particle-Froude numbers in the gas supply tube lie between 1 and 100, in the annular fluidized bed between 0.02 and 2, and in the mixing chamber between 0.3 and 30.

2. (previously presented) The process as claimed in claim 1, wherein the Particle-Froude number in the gas supply tube lies between 1.15 and 20.

3. (previously presented) The process as claimed in claim 1 wherein the Particle-Froude number in the annular fluidized bed lies between 0.115 and 1.15.

4. (previously presented) The process as claimed in claim 1, wherein the Particle-Froude number in the mixing chamber lies between 0.37 and 3.7.

5. (previously presented) The process as claimed in claim 1, wherein the filling level of solids in the reactor is adjusted such that the annular fluidized bed extends beyond the

upper orifice region of the gas supply tube and wherein solids are introduced into the first gas or gas mixture.

6. (previously presented) The process as claimed in claim 1, wherein the metal compound is aluminum hydroxide with a grain size of less than 100 μm .

7. (previously presented) The process as claimed in claim 1, wherein preheated gas containing oxygen is supplied to the reactor through the gas supply tube.

8. (previously presented) The process as claimed in claim 1, wherein gaseous and/or liquid fuel is introduced into the reactor through the gas supply tube.

9. (previously presented) The process as claimed in claim 1, wherein gaseous fuel and/or air is introduced into the lower region of the annular fluidized bed of the reactor.

10. (previously presented) The process as claimed in claim 1, wherein the pressure in the reactor lies between 0.8 and 10 bar.

11. (previously presented) The process as claimed in claim 1, wherein the solids are suspended, dried, preheated and/or partly calcined prior to the heating treatment in at least one preheating stage, wherein the preheating stage comprises a heat exchanger and a downstream separator.

12. (previously presented) The process as claimed in claim 11, wherein the heat exchanger is an annular-fluidized-bed heat exchanger comprising a second stationary fluidized bed and a second mixing chamber.

13. (previously presented) The process as claimed in claim 1, further comprising cooling the reactor by injecting water into the annular fluidized bed.

14. (previously presented) The process as claimed in claim 11, wherein after the heat treatment 0 to 100 % of the product entrained by the exhaust gas of the reactor is discharged via a separator into a preferably fluidizing-gas-operated mixing vessel, and a product mixture is generated with partly calcined solids.

15. (previously presented) The process as claimed in claim 1, wherein the product or product mixture is supplied to a cooling system comprising a plurality of cooling stages connected in series.

16. (previously presented) The process as claimed in claim 15, wherein the gas heated in the cooling stage is supplied to an upstream cooling stage, a preheating stage and/or the reactor.

17. (withdrawn) A plant for producing metal oxide from metal compounds comprising a fluidized bed reactor in which the metal compound is heated by combustion of fuel and metal oxide is generated, wherein the reactor comprises at least one gas supply tube at least partly surrounded by an annular chamber in which a stationary annular fluidized bed is located, and a mixing chamber located above the orifice region of the gas supply tube, wherein the gas flowing through the gas supply tube entrains solids from the stationary annular fluidized bed into the mixing chamber when passing through the upper orifice region of the gas supply tube.

18. (withdrawn) The plant as claimed in claim 17, wherein the gas supply tube extends substantially vertically upwards from the lower region of the reactor into the mixing chamber of the reactor.

19. (withdrawn) The plant as claimed in claim 17, wherein the gas supply tube is arranged approximately centrally, based on the cross-sectional area of the reactor.

20. (withdrawn) The plant as claimed in claim 17, further comprising a solids separator downstream of the reactor, wherein the solids separator comprises a solids return

conduit leading to the annular fluidized bed of the reactor and a solids conduit leading to a mixing vessel.

21. (withdrawn) The plant as claimed in claim 17, further comprising in the annular chamber of the reactor a gas distributor which divides the annular chamber into an upper annular fluidized bed and a lower gas distributor chamber, wherein the gas distributor chamber is connected with a supply conduit for fluidizing gas.

22. (withdrawn) The plant as claimed in claim 17, wherein the reactor further comprises a supply conduit for gaseous and/or liquid fuel which leads to the gas supply tube, and/or a supply conduit for gaseous, liquid and/or solid fuel which leads to the annular chamber.

23. (withdrawn) The plant as claimed in claim 22, wherein in the gas supply tube, a lance is arranged for supplying gaseous and/or liquid fuel, which lance extends into the region of the outlet opening of the gas supply tube.

24. (withdrawn) The plant as claimed in claim 17, further comprising a preheating stage comprising an annular-fluidized-bed heating stage with a chamber for a stationary annular fluidized bed and a mixing chamber.

25. (withdrawn) The plant as claimed in claim 17, further comprising downstream of the reactor a preferably fluidizing-gas-operated mixing vessel for mixing the product with partly calcined solids to obtain a product mixture.

26. (withdrawn) The plant as claimed in claim 17, further comprising a cooling system for the product or product mixture comprising a fluidized-bed cooler with at least one vertical weir, before which the product or product mixture forms a fluidized bed.

27. (previously presented) The process as claimed in claim 1, wherein the metal compound comprises metal hydroxide or metal carbonate.

28. (previously presented) The process as claimed in claim 12, further comprising cooling the annular-fluidized-bed heat exchanger by injecting water into the annular fluidized bed.